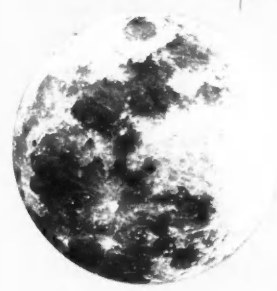


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KENTANIUM*

unharmed

at 2000°F

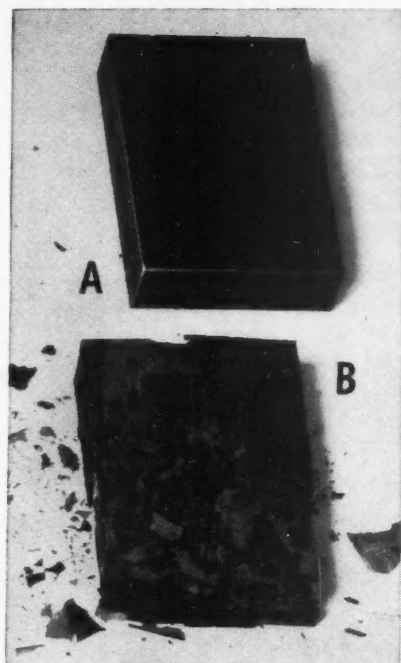
while

heat-resistant

nickel-chrome

alloy

disintegrates



(Photo A) Kentanium shows only slight oxidation after test and is good for many more hours' exposure at 2000°F. (Photo B) Hard nickel-chromium (35%) alloy is badly oxidized and began to disintegrate during test.

Exceptional resistance to oxidation, combined with great strength at very high temperatures, are characteristics of Kentanium, a titanium carbide composition. Here's proof.

A square of K161B Kentanium and a similar square of a well-known, heat-resistant 35 chromium-15 nickel alloy were exposed for 120 hours in an unsealed muffle furnace heated to 2000°F. The accompanying photographs vividly show how each piece was affected. While Kentanium is still good for hours of exposure at high temperatures, the nickel-chrome alloy has oxidized badly and has begun to disintegrate.

This demonstration suggests how well Kentanium will perform in such applications as furnace parts, heat-treating fixtures, quench guide rings, turbine blades, nozzle vanes, bushings and other parts where strength at high temperature, plus high resistance to oxidation, are factors.

Parts illustrated at the right are typical applications of Kentanium. The Kentanium series represents only a part of Kennametal's wide range of hard carbide compositions that are helping designers who require metals offering high resistance to abrasion, deflection, deformation, impact or corrosion. Perhaps one or more of these Kennametal compositions will help you get your idea off the drawing board into production. These materials are described and many applications discussed in two booklets: B-111-A—"Characteristics of Kennametal," and B-222—"Designing with Kennametal."

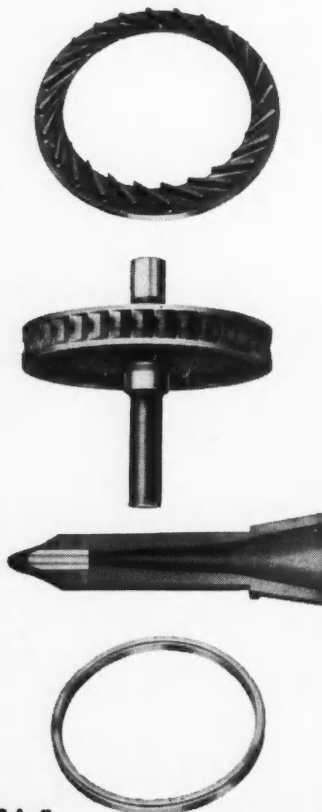
Write KENAMETAL INC., Dept. DT, Latrobe, Pennsylvania.

*Trademark

3127A



INDUSTRY AND
KENAMETAL
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data

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OUR COVER

Man-in-Space program is race by both US and USSR. Air Force's third MANHIGH stratosphere balloon flight took Lt Clifton McClure, shown here in gondola, to peak altitude of 99,600 ft before descending. Studies like these bring man one step closer to space environment.

SUBSCRIPTION RATES: U.S.—\$12.00 for 1 year; \$22.00 for 2 years. Foreign—\$15.00 for 1 year; \$28.00 for 2 years. Available to Government personnel through Federal Supply Schedule, FSS Stock Requirement Number 7630-148, Index No. 1256, FSS Section 76, Page 90. Checks may be made payable to DATA.

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BRIEFINGS

NAVY PLANS UNDERSEA SUB TENDER

Navy will build submergible submarine tender to service nuclear subs so they need not surface even to change crews or take on supplies and have simple to moderate repair work done. Past drawing board stage, undersea tender will give truly long submerging qualities to nuclear underwater craft. All service crewmen, or "ship's company" as Navy calls them, will be trained in use of frogman gear to perform their assigned logistic tasks under water. With submergible tenders, Navy nuclear subs will be able to remain on station for months at a time with fresh crews and supplies brought in, could enable withdraw of some land forces or closing of foreign land bases without loss of strength in the area. . . . and it's a fact that such tenders are being built. ///DATA/

AF MISSILE MANAGEMENT REPORT POINTS UP RAMO-WOOLDRIDGE

Modern-day financial success story of R-W came out in AF report on missiles. Started in 1953, Ramo put up \$6750, Dean Wooldridge matched this figure. Thompson products put up \$165,000. That was 1953. Today R-W has more than \$30 million in assets, owns other companies including a Florida motel corporation. Annual sales increased from \$2 million in 1954 to \$43 million in 1957. AF admits dependence on Ramo-Wooldridge for missile management. As of 31 December 1957, Dr. Simon Ramo and Dean E. Wooldridge were each drawing annual salaries of \$50,024. Seven other vice-presidents ranged from \$30,000 to \$40,000 with one at \$42,500. Not bad for a business going for a bit over five years by two men who had \$13,500 between them.

EMERSON ELECTRIC EXPANDING R&D WORK

Research and development work will be expanded 50% says Emerson Electric of St. Louis.

COMBINING TASKS FOR MISSILES MAY REDUCE TOTAL TYPES

Attempt will be made by Dept Defense to have fewer missile types, not as many different varieties. TITAN may be dropped.

COMPACT ASW SYSTEM BUILT BY NORWAY; US MAY USE

Able to be used in ships as small as 500 tons displacement, Norwegian anti-sub rig is dubbed "TERNE". U S Navy evaluating TERNE at Key West now in a frigate. Automatic system uses search sonar feeding info into a "predictor" which automatically calculates firing angles, aims and fires six rocket-propelled depth charges. Rocket launcher is unmanned and loading is also automatic.

NIKE HERCULES TO BE ON SITE AT ALASKA BASES EARLY IN 1959

Defense areas in Ft Richardson-Elmendorf AFB-Anchorage and Eilson AFB-Ladd AFB-Fairbanks complexes are currently undergoing conversion from present 120mm guns to atomic-capable NIKE HERCULES missile.



AIR SPACE

CHINESE COMMUNIST AF DESCRIBED BY NAV AIR NEWS AS 4TH LARGEST

November Naval Aviation News, official Navy air organ, says Chi Com AF has grown in brief span of nine years to fourth largest air power in world. With air strength of appx 2500 a/c, 1800 of which are jets, Chi Coms rank only behind Soviets, U. S. and U. K. In addition, Red China has naval air force of more than 400 a/c. Soviet equip and training used entirely, says Nav Air News, and a/c include BEAGLE twin jet bombers, FAGOT (MiG-15) and FRESCO (MiG-17) jet fighters with few FARMER (MiG-19) twin-jet fighters. ///Naval Aviation News 11-29/

INTERCHANGEABLE NOSE CONES FOR ATLAS AND THOR

AF announced officially that interchangeable nose cones for ATLAS and THOR, developed by G-E, will be in production soon. ///AF Info/

CONTRACTORS FOR ARMY'S PERSHING

Thiokol: solid rocket motors; Eclipse-Pioneer: inertial guidance; Bulova: fuzing and arming; Thompson Products: transporter-erector-launcher.

ALL WEATHER FIGHTER COMPETITION FOR NAVY: F8U-3 OR F4H-1

V/Adm R B Pirie, DCNO for air, says selection will be made before end of year between McDonnell F4H-1 or Chance Vought F8U-3. ///Nav Info/

NAVY WILL BUY GRUMMAN A2F-1

Described as one of most versatile attack plane designs ever planned for Navy, new Grumman plane will have all weather capabilities, will operate from carriers or land, will have inertial nav equip. ///Nav Info/

NORTH AMERICAN GETS T-39 AWARD FROM AF

NAA will produce new twin-jet trainer with first delivery in 1959. New a/c has cruise of 500 mph and 1400 mile range. ///AF Info/

NAVY AWARDS \$79 MILLION TO DOUGLAS

Contract for third version of A4D SKYHAWK is the A4D-2N. Improved weather and nav capabilities are in this a/c with advanced in-flight re-fueling features. New SKYHAWK is powered by single Wright J-65. Its nearly 40-foot length makes it a foot longer than earlier models. Speed is more than 650 mph. Armament includes atomic weapons. ///Nav In/

NASA PLANS 1-TON SPACE CAPSULE

Companies interested in building a manned space capsule have until 4 Dec to submit bids to Natl Aero and Space Admin. Scheme for building was outlined to 38 missile and a/c concerns. Contract award will be made after 1 Jan 59. No estimates of cost have been given yet. ///NASA/

UNITED A/C GETS \$9 MILLION ROCKET ENGINE AWARD, NEW SATELLITE

Advanced type rocket engine is designed for multi-ton satellite. ///AF/



ARMY STOL A/C BY LOCKHEED

Shown above, new Lockheed a/c proposed to Army, rises almost vertically with jetstream from two 960 eshp Lycoming T-53 prop-jet engines. Army is interested but hasn't put in firm order as yet. ///Lockheed/

AF NEW ROCKET TESTS PARACHUTES

New rocket named CREE has been developed at Dayton by ARDC for testing parachutes at speeds up to 3000 mph and altitudes up to 26 miles. CREE tests 'chutes with 14 to 48-inch canopies. ///ARDC/

\$20 MILLION NAVY-AF CONTRACT ON J-75

Pratt & Whitney Div of United gets \$20 mil for J-75 jet engines. ///Navy-AF Info/

AEROJET EXPANDS INTO FOREIGN FIELD

Aerojet-General joined Bristol Airplane Co of England; will locate new division in U. K. New firm will be known as Bristol-Aerojet and will work on solid rocket motors. ///AG/

ROCKETDYNE GETS ARMY BID

Los Angeles Army Ordnance District has listed award of a \$194,000 classified contract and another \$140,000 research and development contract to Rocketdyne division of NAA.

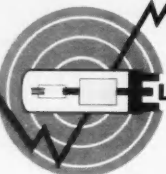
**SMALLER, LIGHTER
and
MORE
RELIABLE**



The new Diaphlex Mililrol switch weighs 2.5 ounces and measures less than 1.2 cubic inches. It operates in the critical 100 to 350 PSI range either pneumatically or hydraulically. Manufactured to exceed MIL-E-5772. Pressure switches which employ the sensing element ideal for the particular application and parameter, are custom engineered by Diaphlex and manufactured to MIL specifications.



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ELECTRONICS COMMUNICATIONS

"SEEING" COMPUTER DLVPD BY LONDON UNIVERSITY

Resembling nervous system of animal, machine emits different sounds for different shapes. New machine being trained to recognize different human faces for ident purposes. As each shape is brought before computer eye, different sound is made in computer ear. If training is effective, computer will be able to recognize very complex shapes, will relate them by combination of sounds. Machine is expected to be able to simulate shapes, faces, figures, animal movements. ///London U/

ARMY ENGINEERS HAVE THERMOGRAPH FOR HEAT PHOTOS

Called THERMOGRAPH, infrared device, unlike conventional photography, does not require sunlight or artificial light to produce image. Device depends solely on radiation from person or object at which it is focused. Since these radiations are present night and day, it can operate in total darkness. ///Army Engineers 1106-1137/

NAVY UNVEILS NEW ELECTRONIC WARFARE SIMULATOR

New \$7,250,000 Navy Electronic Warfare Simulator (NEWS) was unveiled recently at Naval War College in Newport. Installation — a block long and three stories high — will offer officers with from 10 to 20 years of Naval service realistic combat command problems. ///Navy Info/

SATELLITE RELAY STATIONS PROPOSED BY AF

Satellites will be used as passive relay stations for transmitting radio and television signals from one point to another on globe says USAF spokesman. By means of high-speed transmission, satellite will pick up from one point, relay back to earth as it passes other point. Method will eliminate difficulties of atmospheric conditions, lighten currently overloaded channels of transmission. ///Natl Symp on Extnd Range/

RADAR RENDEZVOUS

AF jets and jet tankers are "finding each other" automatically through new beacon signalling system developed by Bendix. Beacon signals are sent by one plane and received on other as blips on radar screen. Freq coded signals give range and bearing for a/c. ///AF Times 1108/

RADAR CONTRACT TO RYAN

Contract for more than \$20 million went to Ryan A/C for automatic nav radar equip for Navy a/c: Lockheed P2V, Martin P5M, Douglas AD and Grumman S2F. ///Navy Info/

STATE OF R&D ON ELECTRON TUBES

State of research and development of electron tubes capable of operating in critical environments of high temp, rough usage, and nuclear radiation is reviewed in report released to industry by USAF. Electron Tubes for Critical Environments, \$3.50, PB 131852, Dept Commerce, Wash 25, D C.

NEW MORTAR LOCATOR RADAR

MPQ-4A Mortar Locator Radar dvlpd for Army SigCor by G-E. Highly mobile, trailer-mounted pulsed magnetron radar sys detects mortar shell in flight and electronically computes location of enemy mortar. In addition to being able to rapidly locate sources of enemy mortar fire and hi-angle lo-velocity artillery, MPQ-4A can also be used to locate points of impact for direction of counterfire. ///Army SigC/

DESIGN OF AN INTELLIGENT AUTOMATON

An understanding of the physical mechanisms which underlie human experience and intelligence is unquestionably one of the greatest scientific challenges of our time. So writes Frank Rosenblatt of Cornell Aero Lab in current issue of Office of Naval Research Research Reviews. Paper goes on to show thinking processes in physical terms, credits advance of electrophysiology and growth of digital computers. Summarizes by saying perceptron program now underway is major undertaking having long-range goals, should not expect practical applications soon. ///ONR 11/

TELETYPEWRITER HAS CAPABILITY OF 3000 WORDS/MINUTE

Dvlpd by Burroughs Corp for Army SigCor R&D at Ft Monmouth, teletypewriter said to be capable of operating at speed of 3000 words/min and has theoretical top speed of 500,000 words/min. At theoretical top speed, new teleprinter could type equiv of three complete novels in a minute. ///Burroughs & ArmySC/

CAA WILL SPEND HALF BILLION IN AVIONICS

Modernizing and building facilities in FY59 and 60 will see CAA spending: Radar \$30.6 million; Communications \$16 million; Nav aids \$43.6 million; \$5 million just for replacement vacuum tubes. ///CAA/

NEW "ARCON" RESEARCH ROCKET FOR NAVY

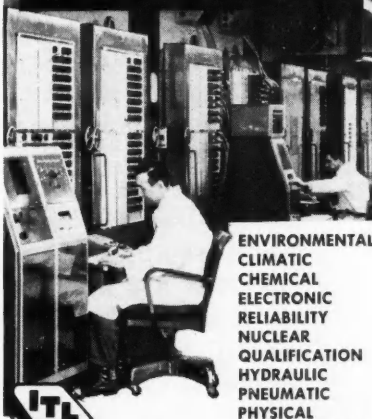
New research rocket for Navy designed to predict flight vibrations. ARCON tested. Can carry 40-lb instrument payload to height of 70 miles or 10-lb payload to 100 miles. Another new rocket, IRIS, designed to carry 100-lb instrument package 200 miles high, is expected to be completed early 1959. Third rocket, ARCAS, useful in weather data, began tests in Oct. ///Nav Info 1118/

\$235,000 CONTRACT FOR HI-VOLTAGE SWITCHES

Several hundred hi-voltage switches will be produced at Bridgeport, Conn for Armed Forces by new Mil Prod Div of Singer Mfg Co. ///Singer 1118/

data 7

TESTING
... from components
to complete systems



**ENVIRONMENTAL
CLIMATIC
CHEMICAL
ELECTRONIC
RELIABILITY
NUCLEAR
QUALIFICATION
HYDRAULIC
PNEUMATIC
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BUILDING PROSPECTS FOR 1959

Both Government and private experts glowingly appraised building prospects for 1959. Spending on new construction next year will rise to a record \$52.3 billion, Commerce and Labor Depts predict. That would be \$3.5 billion above the \$48.8 billion expected for 1958. At same time, F W Dodge Corp forecasts a 4% spurt in construction contracts next year. Industry statisticians said gain would be sparked by a 14% increase in awards for manufacturing plants. *///Wall Street Journal/*

LEAR IN \$2 MILLION-PLUS PLANT EXPANSION PROGRAM

To be completed early in 1959, Lear, Inc will add 189,244 sq ft of floor space to its present 551,600 sq ft making total of 740,844 sq ft for research, design, engineering, manufacturing and admin activities at Lear's Grand Rapids div. *///Lear 1117/*

APPROVAL GIVEN 12 CIVIL WORKS PROJ

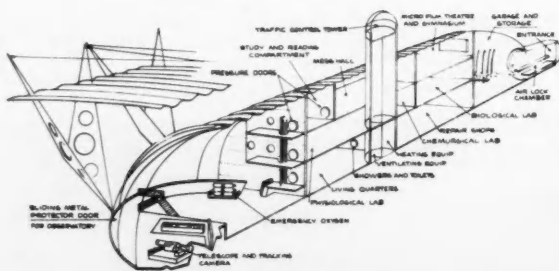
Army Eng Board for Rivers & Harbors has approved following civ works projects: Kewaunee Harbor, Wisc, dredging of channels and turning basin to depth of 20 ft for navigation. Quinebaug River, West Thompson, Conn, construction of earthfill dam for flood control. Moriches and Shinnecock Inlets, N Y, stabilization of inlets and channel dredging, for navigation, improving tidal exchange and beach erosion control. Big Sandy River and Tug and Levisa Forks Basins, Ky, W Va, Va, construction of reservoir on North Fork of Pound River. *///Army Eng/*

NATL SCIENCE FOUNDATION ANNOUNCES FUND FOR ASTRO OBSERVATORY

Additional \$4 million has been allocated for erection and operation of a natl observatory on Kitt Peak in the Quinlan Mts of Southwestern Ariz. This new grant brings to \$7,545,000 now avail for this proj. Construction ops at the site have been awaiting final action on the lease which the Papago Indians have let to Natl Science Foundation. *///NSF 1109/*

PLANS FOR HUGE "MOON BLDG" UNVEILED

Plans for a permanent "moon building" to provide living quarters for moon explorers, laboratories for sci research, maint shops for space vehicles and stations for earth-moon communications have been announced by Wonder Bldg Corp of America, Chicago. Detailed 5 by 6 ft scale model of the structure — a cigar shaped corrugated metal cylinder covered by protective metal "meteoric shield" — was recently unveiled to military and fed government officials at presentation in Washington. *///Wonder Bg/*



MOON BUILDING
DESIGNED AND ENGINEERED BY THE
WONDER BUILDING CORPORATION OF AMERICA



ASTRO COMPANIES SHAKING DOWN TO LESSER NUMBERS

Especially true in field of astronautical power, all over missile field consolidations, mergers and working agreements are being made. Announcement that GM, Thiokol and Callery Chemical have joined forces in field of astronautics epitomizes this trend. ///Astronautics/

NEGOTIATIONS FOR RESEARCH CONTRACTS ON SOLID PROPELLANTS

Army, Navy and AF, on behalf of Advanced Research Proj Agency, have been authorized to initiate negotiations with four US chemical companies which will lead to major research contracts for an integrated solid propellant program. Companies are American Cyanamid, Dow Chemical, Esso Research & Eng, and Minnesota Mining & Mfg. Authorization for the contracts, worth between one and two million dollars each, followed competitive by the chemical industry. ///Dept Defense/

NAVY SOLAR ECLIPSE ROCKETS FIND ORIGIN OF HARMFUL SUN RAYS

Processing data from rockets fired during solar eclipse of 12 Oct, Navy has discovered for first time where the sometimes harmful rays of energy come from in the sun. X-radiation which disrupts radio com on earth, comes from sun's huge outer atmosphere or corona, Navy said. And ultraviolet radiation was found to originate in sun's lower atmosphere, or chromosphere. ///Navy Info/

PROPOSED AEC LICENSING AMEND WOULD REQUIRE QUARTERLY STATUS

AEC has given notice that it proposes to provide by regulation for submission of quarterly status reports by reactor owners during the period of construction of licensed reactors. Reports would be required for all reactors being built for domestic use except critical experiment facilities and standard production model research reactors shipped fully assembled by the manufacturer. ///AEC 1117/

NAVY ESTABLISHES NEW SCHOOL TO TRAIN ATOMIC SHIP CREWS

A basic nuclear power school is to be established at Mare Island Naval Shipyard, Vallejo, Calif., 15 Dec, Navy announced. Scheduled to admit first students in mid-January 1959, school will utilize buildings formerly used for a Fleet Training Center at the Shipyard. ///Navy Info/

FRENCH NUCLEAR POWER

France is planning to enlarge her nuclear power program by 250,000 kw and make this additional power available to the European Atomic Energy Community. Seven power reactors are under construction or planned in the member nations of the atomic energy community, and an eighth reactor at Marcoule, France, has been completed. A total of 25 electrical power reactors are planned, of which nine will be in France, seven in West Germany, four in Italy, three in the Netherlands and two in Belgium. Seven more research reactors are already in operation. ///Milit Review/

LOGISTICS MATERIALS

SOUND WAVES USED ON LIVESTOCK FOR MEAT PREDICTION

Hi-pitched sound vibrations of type used in submarine detection in WWII now being used on animals to find most fat-free animals. Tests being held at Greenbelt research center. Result may be leaner and less expensive meat, aid for farmers in marketing. Present dvlp is in refining equip for individ use. ///Wall Street Journal/

EXPERIMENTS IN SPACE-AGE CLOTHES

By dvlping nylon coatings, blending nylon with other fibers and modifying nylon, Navy hopes to design insulated clothing for space travel. Experimental butyl synthetic-rubber suits with feet, face mask and shoulder fan designed for radiation protection: butyl keeps out contaminated air as fan blows in filtered air. For balloonist protection against cold: glass-fiber-asbestos coverall is coated with aluminum. For protection from heat in rockets speeding earthward: Hoses ventilate plastic-film, ventilated garments and body cools itself by evaporation. ///Navy Info/

NASA OUTLINES ITS \$301 MILLION CONTRACT SETUP

NASA contracts will be handled in accordance with Armed Services Procurement Act with competitive bids. Small biz firms will participate. Special consideration will be given space program and facilities construct participation by small biz. ///Electronic News/

COORS PORCELAIN GETS \$50,000 AF CONTRACT

Coors Porcelain of Golden, Colo recvd \$50,000 for improvement and evaluation of hi alumina ceramic compositions; dvlpmt of nose cone for BO-MARC; cost-design study for full-scale BOMARC radomes; and building of small-scale radome models. ///Coors Porcelain/

CONTRACT FOR OVERLAND TRAIN AWARDED BY ARMY

\$1,717,194 contract for design and construction of 450-ft long, 12-unit overland train for transporting heavy cargo in Arctic regions and in other remote world areas lacking land trans facilities went to R G LeTourneau following eval of design proposals from eleven different mfrs. The 52-wheel vehicle will be equipped with extremely low pressure, 10-ft hi, 4-ft wide tubeless tires. ///Army Transportation/

SEMINARS OF PARTS PROCEDURES SPONSORED BY DEFENSE

Series of three meets will be held in Washington, Chicago and Los Angeles between 8 and 16 Jan 59 to instruct Defense Suppliers in use of new procedures required for selection of spare parts for all equips delivered after 1 Jan. The informal seminars, sponsored by Office of Asst SecDef (Research & Engineering) will be held in Washington 8 and 9 Jan; Chicago 12 and 13 Jan; Los Angeles 15 and 16 Jan. Specific locations will be announced later. For more info write SecDef. ///SecDef/

ARMY QUARTERMASTER CORPS TO BUY 1000 GERMAN SHEPHERD DOGS

1000 German Shepherd dogs will be trained for sentry duty at NIKE and other missile sites over the nation. Nine months to three years of age; males preferred; females must be spayed at least 60 days prior to acceptance; minimum height at shoulder, 22 inches, max shoulder height, 28 inches; minimum weight, 60 lbs, max weight, 90 lbs; any inconspicuous color, no whites. Prices paid will be based upon merits of individual dog. Persons interested in selling qualified animals are urged to get in touch with Office of Quartermaster General, Installations Div, Attn: Contract Officer, Wash 25, DC. ///Army QM 1106/

NEW PORTABLE SUBMERSIBLE PUMP FOR FIREFIGHTING

Dvlpd by Army Engineers, Ft Belvoir R&D Lab, new portable submersible firefighting pump for use in event of destruction of normal city water mains is designed for use in lakes, rivers and possibly the ocean. Electrically-driven unit will make it possible to utilize these water sources to fight fires resulting from enemy action. Capable of 1500 gpm at an 87 ft head, new submersible pump may be driven by simplified, lightweight, 60 kw, 60 cycle, 440 volt engine generator set or by standard military 60 kw engine generator. Unit weights appx 550 lbs and is 68 inches in length. ///Army Eng Ft Belvoir/

DACRON FIRE HOSE DVLDPD BY ARMY ENGINEERS

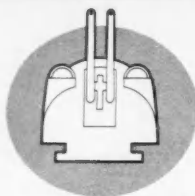
Because it is less bulky, weighs less and resists fungus, Army built a Dacron fire hose. Results: single all-Dacron jacket is equally as strong as double jacketed cotton hose currently used, Dacron hose weighs 35 lbs per 50 ft length as compared to 60 lbs for cotton. Because it is less bulky and more flexible, appx 33-1/3% more Dacron hose can be carried in a fire truck hose bed of a given size. Fungus, a major problem with cotton hose in the field, has no effect on the Dacron variety. ///Army/

IN THE MARKET FOR USED MACHINE TOOLS?

Inauguration of a new industry-wide inventory plan which will facilitate location and sale of used machine tools to purchasers needing them was announced recently by Machinery Dealers Natl Association. Composed of a master file of 5-inch by 8-inch cards, with duplicate files in hands of every MDNA member dealer in the nation, the "inventory" will contain complete descriptions and photos of almost every used machine tool valued at \$1000 or more avail to industry thru the association's member dealers. To be known as the Guaranteed Metalworking Machines plan, the inventory file has been in preparation by the association's officers and directors, and its Washington hq office, for several months. ///Mach Deal Natl As/

AF TESTS NEW SPACE SUIT AND HELMET BUILT BY MINE SAFETY

ARDC press release credits Mine Safety Appliances as dvlping new suit and helmet that withstood 1200 mph windblast test. New one-piece suit is composed of white dacron sailcloth with inner garment of three layers — wool, aluminized dacron, cotton. ///ARDC 1104/



ORDNANCE

\$20 MILLION GOES TO MARTIN ON NAVY BULLPUP CONTRACT

Martin Co, Orlando Div, has been awarded \$20.4 million contract for production of air-to-surface BULLPUP. The missile is powered by solid-propellant rocket. ///Navy Info 1121/

\$2.1 MILLION CONTRACT TO UNIVERSAL MATCH

Navy Bu of Ordnance awards \$2.1 million for engineering and coordination of supersonic surface-to-air TERRIER. USMC will use TERRIER for ship or beachhead ops. ///Navy Info/

FIRST RECORDING OF GRAPHITE IMPERFECTIONS

Atomics International Div of North Am A/C has recorded for first time electron-microscope motion pictures of imperfections affecting physical properties in atomic arrangement of graphite. ///Atomics Intntl/

TWO ARMY RESEARCH CONTRACTS

North American Aviation recvd two contracts to study particles, simulating micrometeorites in outer space, by blasting them against materials to determine impact effects. The 2nd contract covers study of surface materials and hi-temp boundary layers of air found along surface of speeding plane or missile. No figures given. ///North Am/

BUORD BUDGET SEEN INCREASING FOR WEAPONS

Chief of Navy Bu of Ordnance, R/Adm P D Stroop, reports that money spent on new weapons has increased from 20 to 60 percent of budget since FY 1954. In 1959, with lightweight picket-boat depth charges and new anti-submarine torpedoes going into production, and continuing improvements in missiles and rockets, almost 70 percent of BuOrd's budget will be required for ultramodern armaments. Stroop said that 70 percent of the procurement and production budget and over half of the research and development funds go to private industry. ///BuOrd/

DERVISH MISSILE UNWRAPPED

Exterior views recently permitted of Northrop 2.75-inch DERVISH missile. Initially dvlpd to replace MIGHTY MOUSE air-to-air rockets, DERVISH now has been proposed to Army as ground-to-air weapon. DERVISH is spin-stabilized, powered by solid TRX 126B Thiokol rocket motor. DERVISH looks like large-size rifle bullet. ///Northrop/

PLASTIC LINE-THROWING PROJECTILE

The Bu of Ordnance has dvlpd an illuminated, buoyant, line-throwing projectile, based on principle of harpoon guns. Its primary purpose is to facilitate passing lines for refueling or provisioning at sea, particularly at night. In use, shaft of new projectile is inserted in the muzzle of the .45 caliber line-throwing shoulder gun. ///BuOrd/



SHIPS

NAVY RECEIVES NEW OCEANOGRAPHIC RESEARCH VESSEL

New USNS CHAIN will serve as principal research vessel of the independent Woods Hole (Mass) Oceanographic Institution, which conducts oceanographic research under contract to Office of Naval Research. The ship is the first oceanographic vessel capable of working the North Atlantic in winter. The CHAIN is first of three such vessels to be provided for oceanographic work by ONR. ///ONR 1117/

CONTRACTS FOR \$182 MILLION AWARDED FOR GUIDED MISSILE SHIPS

Guided missile frigate contracts totalling \$182,493,105 have been let by Navy. Bath Iron Works will construct DLG-16, lead ship of the class. Contract price for DLG-16 is \$71,617,200 plus \$9,119,000 for working plans. Same plans will be used by other shipbuilding yards to prepare sister ships. New York Shipbuilding will construct DLG-19 and 20. Total for these two frigates is \$49,886,594. Puget Sound Bridge and Dredging will build DLG-21 for \$25,399,146. Todd Shipyards will construct DLG-22 at price of \$26,471,165. Navy points out that by having many yards on this project they get earlier delivery of all ships. ///Navy 1110/

NEW ANTI-SUB SHIP PLANNED

New anti-submarine warfare ship — more deadly to enemy subs than anything now afloat — is being planned by Navy. R/Adm Roy L Johnson, outgoing director of Long Range Objectives Group in Naval Operations, made the disclosure. Adm Johnson turned over his OpNav post to R/Adm Horacio Rivero Jr, who will be new Long Range Chief. Johnson will head Carrier Division 4. ///Navy Times 8/

SHIP REFLOAT GEAR PATENTED

Method of salvaging sunken vessels by pumping them full of light plastic balls has been invented by two New Yorkers. The balls would be dropped down a tube from a boat on the surface, and be propelled into a porthole low on the side of submerged craft. Inventors, Clement F Norelli and Harry A Pulin, assigned patent 2,857,873 to the Norpul Corp of NY.

SERVICE TESTING BEGINS FOR ARMY "SHALLOW-DRAFT" CARGO SHIP

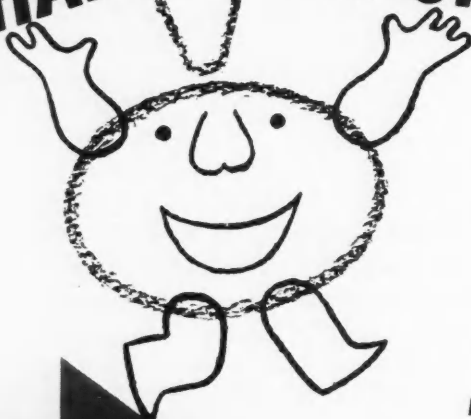
Army's new 338-ft experimental shallow-draft cargo vessel, LIEUTENANT COLONEL JOHN U D PAGE, is now undergoing tests off West Coast. Designated BDL (Beach Discharge Lighter) 1-X, new vessel was built by Natl Steel and Shipbuilding Corp of San Diego. Powered by two 110 hp diesel engines, BDL-1-X is 65-ft wide and can discharge cargo on beach in depths as shallow as 4 ft. It has displacement in landing conditions of 2340 tons and seagoing displacement of 4126 tons. ///Army Info/

TWO BOATBUILDING FIRMS RECEIVE NAVY CONTRACTS

Martinac Corp of Tacoma gets \$294,723 and Elizabeth City Shipyard of 'Liz City rcvd \$449,769 for making 72-ft torpedo retriever boats. ///Navy/

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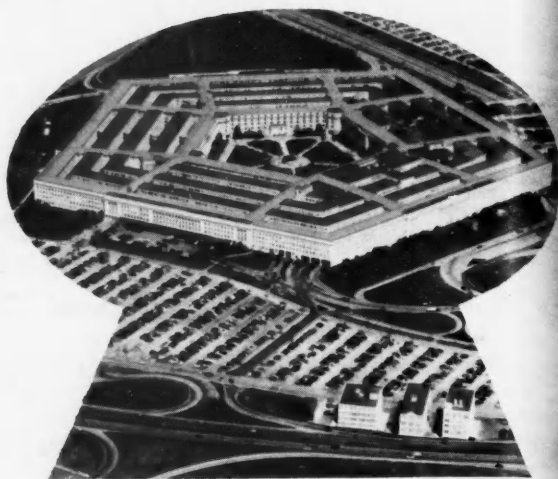
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